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The Effect of Geogrid Reinforcement Pre-Stressing on the Performance of Sand Bed Supporting a Strip Foundation

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Abstract : In this paper, an experimental and numerical study was adopted to investigate the effect geogrid soil reinforcement pre-stressing on the pressure settlement relation of sand bed supporting a strip foundation. The studied parameters include foundation depth and pre-stress ratio for the cases of one and two pre-stressed reinforcement layers. The study reflected that pre-stressing of soil reinforcement resulted in a marked enhancement in reinforced bed soil stiffness compared to the reinforced soil without pre-stress. The best benefit of pre-stressing reinforcement was obtained as the overburden pressure and pre-straining ratio increase. Pre-stressing of double reinforcement topmost layers results in further enhancement of stress strain relation of bed soil.

Keywords : geogrid reinforcement, prestress, strip footing, bearing capacity
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